Scott McCallum, Governor
Darrell Bazzell, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
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State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

March 29, 2002

Georgianna Hopf
Grants Specialist
Wisconsin Land Information Program
Office of Land Information Services
P.O. Box 1645
Madison, WI 53701-1645

Subject: DNR FY03 Plan to Integrate Land Information

Dear Georgianna:

Attached is a hardcopy version of the ***Wisconsin Department of Natural Resources FY03 Plan to Integrate Land Information***, which The DNR Enterprise Data Management Section (EDM) and the DNR Land Use Team are submitting on behalf of the agency. The Plan has been prepared in accordance with WI State Statutes Section 16.967(6) and the ***2002 Instructions for State Agency Plans to Integrate Land Information***, which you provided to me on February 14, 2002.

I am also providing the Plan, together with its Appendixes, in digital format on the accompanying CD-ROM. In the near future I will be making the Plan accessible in .pdf format on the DNR Enterprise Data Management Section internet website, at: www.dnr.state.wi.us/org/at/et/geo/.

Please feel free to contact if you have questions or would like more information about the Plan.

Sincerely,

John Laedlein
GIS Data Specialist
Enterprise Data Management Section
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921.
laedlj@dnr.state.wi.us, 608/264-8914

Wisconsin Department of Natural Resources
FY03 Plan to Integrate Land Information

CONTENTS

I. EXECUTIVE SUMMARY

This plan is submitted by the Wisconsin Department of Natural Resources (DNR). Preparation of this plan was coordinated by:

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Wisconsin Department.of Natural Resources
Bureau of Enterprise Information Technology and Applications (ET)
Enterprise Data Management Section (EDM)
P.O. Box 7921, 101 S. Webster St.,
Madison WI 53707-7921
laedlj@dnr.state.wi.us
Phone: (608) 264-8914; Fax: (608) 266-0870

Unless otherwise indicated, the street and mailing address of DNR staff cited in this plan is the same as that indicated above for the DNR Central Office in Madison, WI. Others who participated in the preparing this plan (addresses same as above), are also designated as contact persons for questions regarding this plan:

Mike Bohn, EDM Section Manager
bohnm@ dnr.state.wi.us
Phone: (608) 264-8557

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morrila@dnr.state.wi.us
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parsok@dnr.state.wi.us
Phone: (608) 266-5213

Shannon Fenner, DNR Land Use Team Leader
Bureau of Integrated Science Services
fennes@dnr.state.wi.us
Phone: (608) 267-2770

The Wisconsin Department of Natural Resources (DNR) is required by statute to provide an annual Plan to Integrate Land Information to the Wisconsin Land Information Board (WLIB). The DNR Land Information Integration Plan for 2002-2003 follows the standard format called for by the WLIB.

This Plan was prepared predominantly by staff in the DNR Bureau of Enterprise Information Technology and Applications (ET), Enterprise Data Management Section (EDM), with input from other DNR program GIS data custodians as needed. EDM staff responsible for preparing the plan have endeavored to summarize the land information-related activities of DNR programs, while focusing on the activities and plans for the Agency's core GIS facility, housed in the EDM and GIS Services Section. Where available, existing descriptions of land information-related initiatives being carried out by other DNR programs have been incorporated into this Plan.

Numerous DNR programs are or may be involved in land information-related initiatives with little or no coordination with the EDM or GIS Sections. Broader program involvement is needed for the DNR to be a full participant in the state agency land information planning process. Where available, existing descriptions of land information-related initiatives being carried out by other DNR programs have been incorporated into this Plan. However, staffing shortfalls do not allow the EDM Section to coordinate the agency-wide survey that would be needed to report on all activities relating to land information integration within this agency.

This need was recognized in the preparation of earlier DNR Land Information Integration Plans, and led to the proposal in the DNR 2000 Information Technology Strategic Plan for a DNR "Land Information Program, Requirements Phase" project. The goal of that project was to lay the groundwork over the 2001-2003 biennium for achieving broader, agency-wide participation in the state agency land information planning process (Appendix B includes the project proposal). However, resources were not available to implement that project.

Summary of New Land Information-Related Initiatives at the DNR

Several land information-related initiatives have been proposed for the DNR in the form of "Project-Based Budget Proposals". The Department's success in pursuing these projects will depend on making sufficient staff and funding resources available. Refer to Appendixes C through G for more information about these proposed initiatives.

- **Distributed GIS / DNRview Migration** – DNRview is an ArcView3.2-based extension and associated files that make it easier for staff throughout the agency to use GIS technology to support their program needs. For FY03, the emphasis of this project will be to research and begin development of an ArcView8-based version of DNRview

- **Web Mapping Infrastructure** – This project supports development of the technological infrastructure to support an agency-wide approach to internet mapping at the DNR. Demand for access to DNR Geographic and related data through a web mapping interface will continue to grow and keep pace with increased utilization of GIS and land information technology by a broad range of internal and external customers. For FY03, goals of this project include:
  - Expand capability of the internet map servers for the intranet (DNR staff), and the internet (partners and the general public)
  - Develop and implement standards for presenting DNR geographic and program data over the internet/intranet
  - Expand services and connectivity to SDE to better provide integrated spatial and tabular data delivery
  - Expand serving of aerial photographs.
  - Assess feasibility of on-line download of data for DNR staff and the public
  - Support tools for DNR program staff – Develop intranet interfaces and procedures for locational data improvement, to support agency staff in the capture, update, and documentation of DNR program site locations

- **Data Development** – This project provides continued support for GIS and land information data development activities and data development services to the agency. These can include:
  - Geographic data processing and consulting
  - Update of GIS Framework data layers, development of new databases
  - Consulting to programs for database development
  - Conversion and processing of Ortho aerial photos (digital orthophotos, or DOPs)
  - Development and operation of a system to create DOPs
  - Consulting and guidance for appropriate use of GPS and field data collection tools
  - Development of partnership relationships with external data providers

- **Data Management** – The DNR Enterprise Data Management Section (EDM) manages and provides access to enterprise geographic framework data that support a broad range of business needs throughout the agency. One of the core responsibilities of the EDM Section is the management of these DNR enterprise data holdings in ArcSDE (Spatial Database Engine) and other database libraries which promote data integrity and provide DNR staff with reliable access to the data. Key components of this project include development and implementation of SDE-related standards, policies, and best practices for these core management activities.

- **SDE Expanded Database** – The reliance on ArcSDE by GIS and Oracle users and application developers at the DNR continues to increase. These activities have prompted the need to research, develop, and implement standards, policies, guidance, and best practices for several newly requested or anticipated SDE functions, including:
  - SDE/Oracle administration issues (e.g., logon and password change/expiration issues, involvement in security issues especially as they relate to SDE)
  - Creating non-spatial objects in SDE (e.g., views, indexes, tables)
  - SDE environment dependencies (e.g., Oracle 9i database upgrades, operating systems changes such as Compaq TRU64 and Windows 2000/XP, etc)
  - Understanding future Environmental Systems Research Institute (ESRI) technology directions
  - Capability for "Direct Connections" via ArcGIS clients
  - Data loading support for applications – building generic ArcObject tools for loading or appending data to a feature class
  - Defining relationships (e.g., rules, domains) within and among feature classes
  - Geodatabase modeling for new and updated databases
  - Raster data issues (e.g., identify feasibility and resources needed to support raster data in SDE)
  - SDE versioning and multi-user editing for dynamic segmentation to support surface water feature connectivity

II. THE FIVE TECHNOLOGY ARCHITECTURES

A. Applications Architecture

1. Identify and characterize the major applications which incorporate land information or GIS/LIS.

- Web Mapping Services (developed using Arc Internet Map Server or Map Objects Internet Map Server software):

  - Wisconsin Waters Initiative - Dam Safety Database - http://www.dnr.state.wi.us/org/water/wm/dsfm/dams/index.html
  - GIS Registry of Closed Remediation Sites - http://gomapout.dnr.state.wi.us/org/at/et/geo/gwur/index.htm
  - Automated License Issuance System Map Application - http://www.dnr.state.wi.us/org/at/et/geo/alis/index.htm
  - Natural Heritage Inventory Online Database - http://www.dnr.state.wi.us/org/land/er/nhi/NHI_ims/onlinedb.htm
  - Scanned Topo Maps Viewing and Data Download Site - http://gomapout.dnr.state.wi.us/scripts/esrimap.dll?name=drg_web&Cmd=Map
  - WISCLAND Land Cover Data Viewing and Data Download Site - http://www.dnr.state.wi.us/org/at/et/geo/data/wlc.htm
  - Ice Age Trail Map Buffet - http://www.dnr.state.wi.us/org/at/et/geo/iceage/index.htm

- DNRview

  DNRview is a system of integrated components developed by the DNR EDM and GIS Sections for accessing DNR geographic data and for building distributable ArcView-based applications. The key components of the DNRview system are:

  1. The base DNRview extension to ArcView that includes additional functionality in ArcView menus, tools and buttons for accessing, querying and manipulating DNR data sets. The extension supports mapping projects such as REGview and other mapping applications, including a Wildlife Management Mapping Application, and an Integrated Mapping Application developed by the DNR Water Division. These mapping applications are enabled through the distribution and use of customized files and tables that work in conjunction with DNRview version 2 and a related extension called DV_Map. The mapping applications provide staff with customized theme legends, map layouts, and additional functionality tailored to meet DNR program business needs.
  2. The mapping files and the DNR geographic data sets ("DVGISLIB") organized in the DNRview GIS Library structure for use with DNRview and DV_Map.
  3. The documentation, training and technical support provided by EDM and GIS Section staff for DNRview users.

  DNRview makes it easier to use and share DNR geographic data whether that data resides on a CD, on a network file service, or on local computer's drives. It is a flexible and dynamic system that DNR staff can use for a variety of existing applications as well as build on in the future for new projects. The DNRview application is developed in the Avenue language for ArcView 3.2, and is in need of migration to ArcGIS version 8. DNRview is a system that in the future, with interest and funding, can be further enhanced to incorporate additional functionality required by DNR programs.

- Digital Orthophoto (DOP) Status Tracking System

  Digital orthophotos (DOPs, also known as DOQs or DOQQs) are digital images of detailed, rectified aerial photographs generally produced by the US Geological Survey, counties, or other government agencies. DOPs are typically black-and-white images with brightness values stored as 256 grey levels.

The resolution and tiling scheme used for DOPs varies depending on the producer. The DOP Status Tracking is an ArcView-based system developed by the DNR EDM and GIS Sections for tracking the status of agency DOP holdings. The Tracking application is developed in the Avenue language for ArcView 3.2, and is in need of migration to ArcGIS version 8.

- Aquatic & Terrestrial Resources Inventory (ATRI)
  The ATRI project is managed by the DNR Bureau of Integrated Science Services. A number of web-based intranet applications have been developed to retrieve, document, and display data. The project goal is to establish a current, accurate, integrated, and comprehensive information management system of significant aquatic and terrestrial data which is structured to promote efficient and integrated decision making at a variety of spatial and temporal scales. As of this writing, implementation of the ATRI initiative is on hold pending internal review.

- Surface Water Integration System (SWIS)
  The Surface Water Integration System (SWIS) is managed by the DNR Water Division. SWIS is made up of several components, including a geographic query interface which, in conjunction with the 1:24,000-scale Hydrography database, enables a set of common queries and analyses to be performed on any water related datasets. SWIS is intended to provide the "framework" for integrating the department's water data, tools for linking their data to the 1:24K Hydrography layer, training on how to use the tools, and documentation and guidance on how to get their datasets integrated into the Surface Water Integration System. Additional program applications may be built upon this framework to meet specific needs beyond those provided for in the SWIS common query interface.

- Source Water Assessment Program (SWAP) Mapping Project
  This is a project within the DNR Bureau of Drinking Water and Groundwater (DG) funded via the Source Water Assessment Program (SWAP). A goal of the SWAP project is to make maps available via the intranet/internet showing well location with the following information: contaminant sources, sample results, vulnerability assessment data, well attribute data, waste attribute data, geological information. Applications will be developed to manage, quality assure, link, retrieve and display groundwater-related data.

- GIS Registry of Closed Remediation Sites
  This is a project sponsored by the DNR Bureau of Remediation and Redevelopment (RR) to provide intranet/internet access to information about closed sites with groundwater contamination remaining that is above ch. NR 140 enforcement standards. A goal of this project is to integrate the closed remediation site information with related information in the Bureau of Remediation & Redevelopment Tracking System (BRRTS) Oracle database.

2. Include a discussion of high-level and agency-wide land information integration efforts.

Several laws give the Wisconsin DNR responsibility and authority to address land use issues. The agency is authorized to directly purchase and manage land for purposes of resource conservation, environmental protection, or recreation. Sections 30.26, 30.27, and 30.275, Wisconsin Statutes give the DNR the responsibility to preserve, protect, and enhance urban and wild and scenic rivers. Activities carried out under this chapter have land use implications. The DNR Land Use Team provides access to information about these activities:

http://www.dnr.state.wi.us/org/es/science/landuse/

See also Appendix A for information about the Land Use Team's plan to provide access to DNR data relevant to land use comprehensive planning.

3. Identify any major GIS/LIS applications developed at the DNR.

This information is provided in Section I.A.1. See also Appendix A for information about the DNR Land Use Team's plan to provide access to DNR data relevant to land use comprehensive planning.

B. Information Architecture

1a Identify the major land information data sets, and the corresponding metadata, developed, enhanced, or currently used within your agency. Particularly, identify any land information for which your agency has assumed custodianship.

An ongoing task of the DNR/EDM is to develop metadata describing the agency's major enterprise land information data holdings. Metadata is posted to the DNR/EDM website as it becomes available:
http://www.dnr.state.wi.us/org/at/et/geo/metadata/index.html

In many cases, metadata describing DNR program GIS data is also available on the DNR website, on web pages maintained by the custodial DNR program. The following is a description of land information for which the DNR has custodial responsibilities:

Dams

The DNR Bureau of Watershed Management (WT) is the custodian for the state's dam inventory, which is maintained in a relational database. The inventory includes locational information for over 3,500 large and small dams in Wisconsin, but does not include detention ponds or dams located away from a waterway. The original geographic reference is latitude-longitude for large dams, and Public Land Survey System (PLSS) township, range, section, and quarter-quarter section for other dams. DNR/WT is in the process of using GPS and other data collection methods to improve information about dam locations. Information about the DNR Dam Safety program, including an internet mapping application providing access to dam locations, a downloadable shapefile, and a data dictionary, is posted on the DNR website:
http://www.dnr.state.wi.us/org/water/wm/dsfm/dams/index.html

The dam inventory database includes a variety of attributes regarding dams, such as owner and contact information, nearest town downstream, county, stream name, hazard rating, emergency planning status, height, size, water volume, and DNR inspection history. Dam inventory data are available from the bureau custodian; for more information contact:

Meg Galloway, State Dam Safety Engineer, WT/6
gallom@dnr.state.wi.us, (608) 266-7014.

Source of custodial authority: database creator

Deer, Bear and Turkey Management Units

The DNR Bureau of Wildlife Management (WM) is the custodian for several statewide data layers: Deer Management Units (DMUs), Bear Management Units (BMUs), and Turkey Management Units (TMUs). Data for these wildlife management unit boundaries was derived from several USGS 1:100-scale data layers, including state and local roads, hydrography, railroads, and county boundaries. The DNR Bureaus of Communication and Education, Wildlife Management, and the GIS Services Section worked cooperatively to develop these statewide layers. Attribute data includes polygon unit codes and boundary codes for line features. For more information, contact:

Tim Weiss, GIS and Data Coordinator, WM/4
weissn@dnr.state.wi.us, (608) 267-9428.

Source of custodial authority: internal policy

DNR-Managed Lands
The foundation for the DNR Managed Lands spatial database is the 1:24,000-scale PLSS Landnet. This was accomplished by establishing a relational link between the DNR Bureau of Facilities and Lands (LF) existing Oracle Land Records database and to the 1:24,000-scale Landnet. A process was created to flag all PLSS quarter-quarter-sections (40 acres) where DNR real estate transactions occur. This approach requires additional quality assurance review and editing, it demonstrates the utility of a topologically structured database linked to extensive geo-referenced tabular land parcel information. LF is the custodian for the DNR-Managed Lands data set that is currently being developed, primarily from 1:24,000-scale sources. For more information, contact:

Jeffrey Walters, ET/8
waltej@dnr.state.wi.us, (608) 264-8558.

Source of custodial authority: database creator

Floodplain Zoning
The DNR Bureau of Watershed Management (WT) is the custodian for the state's Floodplain Zoning data. The Federal Emergency Management Agency (FEMA) produced the hardcopy Flood Insurance Rate Maps (FIRMs) for Wisconsin, primarily from USGS 1:24,000-scale topographic maps. Hydrologic and hydraulic engineering models were used to establish 100-year flood elevations on portions of Wisconsin streamsDigital Flood Insurance Rate Maps (FIRMs) are now available for Wisconsin and may be obtained through DNR/WT. Development of digital floodplain delineations is currently in progress by DNR/WT.

For more information about floodplain and shoreland zoning data at the DNR, contact:

Alan Lulloff, WT/6
lulloa@dnr.state.wi.us, (608) 266-2709.

Source of custodial authority: internal policy

Hydrography at 1:24,000 Scale
A statewide 1:24,000-scale Hydrography GIS data layer was completed in 2001 as the result of a cooperative project initiated by DNR. The source for the 1:24,000-scale Hydrography GIS dataset is the 1:24,000-scale USGS topographic map series for Wisconsin. Features are assigned the DNR's Master Waterbody Identification Codes (WBICs) to enable integration of this dataset with water-related tabular data. Joint custodianship for the 1:24,000-scale Hydrography data is shared by the DNR Bureau of Enterprise Information Technology and Applications (ET) Enterprise Data Management Section (EDM), and the DNR Water Division.

Contact information and user documentation for the 1:24K Hydrography data layer is posted on the DNR/EDM website:

www.dnr.state.wi.us/org/at/et/geo/data/hyd24k.html

Source of custodial authority database creator

WISCLAND Land Cover
The WISCLAND Land Cover data layer was the result of a 5-year work effort to interpret the state's land cover (primarily vegetation) from satellite images. This GAP (National Gap Analysis Program) initiative has had a great deal of interest within the agency and from many partners and financial contributors - federal and state agencies, regional planning commissions, utilities and university researchers. Although the USGS Upper Midwest Environmental Services Center (UMESC) is believed to be the custodian of the WISCLAND Land Cover data set; information about UMESC is accessible at: /www.umesc.usgs.gov/. DNR/EDM acts as the primary distributor of these data to DNR staff, and as an alternate distribution outlet to external requesters. The WISCLAND data and documentation can be accessed on the DNR/EDM website: http://www.dnr.state.wi.us/org/at/et/geo/data/wlc.htm .
Source of custodial authority: database creator

Landnet
DNR/EDM is the custodian for the Landnet geographic data layer, which is a representation of the Public Land Survey System (PLSS), automated primarily from sources compiled at 1:24,000 scale. Technical documentation for the 1:24K Landnet data set can be downloaded from the following DNR web page: http://www.dnr.state.wi.us/org/at/et/geo/data/geo_cds.html#Landnet . For additional information about the 1:24,000-scale Landnet, contact:

John Laedlein, ET/8
laedljl@dnr.state.wi.us, (608) 264-8914

Source of custodial authority: database creator

Natural Heritage Inventory
The DNR Bureau of Endangered Resources (ER) plays a critical role in the development and maintenance of data on Wisconsin's rare resources. Wisconsin's Natural Heritage Inventory (NHI) program resides in ER and leads the Bureau's efforts to collect, store and interpret these data. Natureserve, formerly the science division of The Nature Conservancy (TNC), helps sponsor and coordinate many such programs in an effort to develop and integrate an international database on the condition, status, and distribution of rare species and high quality natural communities.

An ongoing activity of ER Heritage Section staff is the recording of occurrences of rare species and quality natural communities in Wisconsin on USGS 1:24,000-scale topographic maps. The corresponding attribute data is entered into the NHI's PC-based relational database management software package, Advanced Revelation, (scheduled to be converted to a PC-Oracle application in mid-late 2002). These compilations become the source data for representation as data layers in the NHI GIS. In an effort to enhance the organization and accessibility of NHI data for making policy and management decisions, ER has been working to make its NHI data available to DNR staff in a GIS format.

For more information about Natural Heritage Inventory data, contact:

Julie Bleser, ER/4, Heritage Section
blesej@dnr.state.wi.us, (608) 266-7308.

Source of custodial authority: internal policy

Recreational Trails
The DNR Bureau of Parks and Recreation (PR) is the custodian for the Recreational Trails GIS data set. This data set was created by first selecting trails from the 1:100,000-scale Roads and Trials coverage derived from USGS 1:100,000-scale Digital Line Graphs. PR identified recreational trails that needed to be added to the data set. GIS Services digitized these trails from USGS 1:100,000- or 1:24,000-scale topographic quadrangle maps. Trail names were added as annotation. DNR/PR, with assistance from GIS Services, has undertaken a long-term project to upgrade locational information about the state's recreational trails, primarily through the use of GPS technology.

Trail features are assigned standard trail identification codes to enable integration of this data set with trails-related tabular data maintained by the Bureau of Parks and Recreation. These tabular data include information such as trail surface type, permitted uses, owner, operator, and contact information. For information about DNR trails-related tabular data that may be integrated with the Recreational Trails GIS data set, contact:

Bonnie Gruber, PR/1
grubeb@dnr.state.wi.us, (608) 267-7459.

Source of custodial authority: internal policy

State Forest Stands
The DNR Division of Forestry (FR) is the custodian for the State Forest Stand Map geographic data layer, with coverage available for Wisconsin's six major state forests: Northern Highland American Legion, Brule River, Flambeau River, Black River, Kettle Moraine South and North, and Governor Knowles.
The original forest stand maps were interpreted using unrectified aerial photography and drawn onto mylar film. The forest stand boundaries on the mylar maps were then digitized onscreen into ArcInfo using SPOT® panchromatic satellite imagery as a reference base. The digital SPOT imagery has 10-meter resolution and has been rectified (i.e., distortions have been removed); use of the rectified SPOT imagery as a reference base for onscreen digitizing effectively removes the errors inherent in the unrectified maps. RECON maps are now updated using an ArcView 3.2 application – RECON ArcView Editer (RAVE). This application is being used on site at the above mentioned Northern State Forests. Tabular and spatial information are then sent to central office for storage in a state wide system.

The original mylar maps also include field reconnaissance (RECON) information compiled for the individual forest stands. This attribute information has been entered over the years into Oracle tables and subsequently linked to the automated forest stand maps. The RECON database includes over 25 items, such as: site index, primary cover type, primary cover size, board feet per acre, cords per acre, etc. For further information, contact:

Mark Heyde, FR/4
heydem@dnr.state.wi.us, (608) 267- 0565.

Source of custodial authority: internal policy

Watersheds
The DNR Statewide Watershed Boundary Geographic Data Layer was developed cooperatively by the DNR Bureau of Watershed Management and the GIS Services Section. This data set was derived from topographic data on USGS 1:24,000-scale topographic maps, and automated using ArcInfo. The data custodian is the DNR Bureau of Watershed Management (WT). For more information about this data set, contact:

Jeff Kreider, WT/2
kreidj@dnr.state.wi.us, (608) 266-0856.

Source of custodial authority: database creator

Wisconsin Wetland Inventory
The DNR Bureau of Fisheries Management and Habitat Protection (FH) is the custodian and sole distributor for the Digital Wisconsin Wetland Inventory (WWI) geographic data layer. Wetland delineations are digitized from 1:24,000-scale ratioed and rectified photographic base maps using ArcInfo. Wetland delineations and classifications are obtained from air photo interpretation and field verification of 1:24,000-scale black-and-white infrared stereoscopic aerial photography. Point coverages representing wetlands less than the minimum map unit for a particular county (2 or 5 acres) are also generated. Various attributes describing map production background information and digital updates are also included. Map tiles for this layer correspond to PLSS townships.

Hardcopy wetland maps are available for inspection at any DNR office or can be purchased from the Wisconsin Geological & Natural History Survey (Map Sales: 608/263-7389). For information about the distribution policy, license agreement, and datasharing fee structure for WWI data, contact:

Calvin Lawrence, FH/6 or,
lawrec@dnr.state.wi.us, (608) 266-0756

Lois Simon, FH/6
simonl@dnr.state.wi.us, (608) 266-8852

Sources of custodial authority:

Navigable Waters Protection (Ch.30 & 31, Wisconsin Statutes); Regulates construction and waterway alteration in and adjacent to navigable waters, including dams, filling, water diversion, grading, and dredging. Alteration of non-navigable waterways, such as dredging, is also regulated.

Shoreland and Wetland Zoning Oversight (Ss. 59.971, 61.351 & 62.231, Wisconsin Statutes); Statute requires DNR to provide technical assistance to local zoning officials, oversight of local decisions, and general development and wetland protection standards for "shorelands" adjacent to navigable waters, which are administered by local governments.

Water Quality Certification (S. 401 Federal Clean Water Act, NR 103, & NR 299); Advises the Corps when projects are inconsistent with state water quality standards. The federal permit won't be issued until the project becomes consistent with those standards.

Other Geographic Data Managed by the DNR Water Division

In addition to the major data sets described above, the DNR Water Division has custodial responsibilities for several other water-related data. These include:

- Outstanding and Exceptional Resource Waters (NR102) – maintained by the DNR Bureau of Watershed Management (WT)
- Zebra Mussels - Statewide point coverage completed through 2002, depicts zebra mussel sampling points and infestation locations – maintained by DNR/WT

For more information about these data sets, contact:

Janel Pike, WT/2
pikej@dnr.state.wi.us, (608) 266-5606

- Degraded waters (303d) – maintained by DNR/WT

For more information about this data set, contact:

Jim Ruppel, WT/2
ruppej@dnr.state.wi.us, (608) 266-2554

- Fish Contaminant/ Advisory sites – maintained DNR/WT

For more information about this data set, contact:

Jim Killian, WT/2
killij@dnr.state.wi.us, (608) 264-6123

- Variance Waters (NR104) – statewide, complete through 1996 (roughly), point, line, and polygons depict waters granted variance per code. – maintained by DNR/WT. For more information about this data set, contact:

  Diane Figiel, WT/2
  figied@dnr.state.wi.us, (608) 264-6274

- Wells – Private, public, and monitoring wells (maintained by various DNR Water Division programs)
- NonPoint Source Barnyards; only for NPS Priority Watershed Project Areas – maintained by DNR/WT
- 1:24K Subwatersheds – statewide, patchwork created for Non-Point Priority watershed project areas – maintained by DNR/WT
- Contaminant Source Inventory – sources located inside delineated protection areas around public wells ONLY! – currently maintained by the Bureaus of Drinking Water and Groundwater; the Bureau of Remediation & Redevelopment is creating statewide coverages of SOME of these contaminant source locations.

For more information about these data sets, contact:

Ann Schachte, DG/2
schaca@dnr.state.wi.us, (608) 267-2301

- Waste Water Outfalls – in progress (approximately 80 percent complete statewide), maintained DNR/WT For more information about this data set, contact:

  Kate Barrett, WT/2
  barrek@dnr.state.wi.us, (608) 266-9238

1b. Identify mechanisms of access or distribution of land information and metadata, e.g., via the internet, WISCLINC, standard or custom CD-ROM products, FTP (file transfer protocol), zip file, etc.

- HTML-based web pages (metadata): http://www.dnr.state.wi.us/org/at/et/geo/metadata/index.html

- Standard datasharing CDs: http://www.dnr.state.wi.us/org/at/et/geo/data/geo_cds.html
- FTP (file transfer protocol): The agency's external ftp site may be used for one-time datasharing requests by arrangement with the DNR/EDM. EDM is also investigating the feasibility of utilizing this site for more routine datasharing.
- Internet Map Service-based data download: This is currently being used to provide access to Digital Raster Graphics and Land Cover data (see Section II.A.1). Expanded use of Internet Map Services for data download is possible in the future, depending on available resources.
- DNR/EDM has provided copies of geospatial metadata to WISCLINC in the past, and will do so in the future as requested.

1c. Identify all major land information or metadata, if any, that your agency makes available through your agency web site(s), and any land information data or metadata your agency plans to make available later either through your agency web site(s) or through WISCLINC. Include a discussion of that land information necessary for local comprehensive planning under Wisconsin ss. 66.1001(2).

DNR/EDM currently provides access to a variety of agency land information data through compact disks and the EDM website: http://www.dnr.state.wi.us/org/at/et/geo/. Major DNR land information distributed by the DNR/EDM include the following:

1. Hydrography (Surface Water) from 1:24,000-scale sources; http://www.dnr.state.wi.us/org/at/et/geo/data/hyd24k.html
2. Landnet (a representation of the Public Land Survey System) from 1:24,000-scale sources; http://www.dnr.state.wi.us/org/at/et/geo/data/geo_cds.html#Landnet
3. WISCLAND Land Cover; http://www.dnr.state.wi.us/org/at/et/geo/data/wlc.htm
4. 7.5-minute Digital Raster Graphics; http://www.dnr.state.wi.us/org/at/et/geo/data/drg.html
5. Digital Orthophotos (DOPs), in cases where the DNR has permission from the producer to re-distribute, in MrSID (Multi-Resolution Seamless Image Database) format; http://gomapout.dnr.state.wi.us/website/dop_tracker/viewer.htm
6. DNR Watershed Boundaries; http://www.dnr.state.wi.us/org/at/et/geo/metadata/dnr_ld/wsdrwats.html

DNR/EDM plans to continue to expand the number of agency land information data sets described on the EDM website, to include DNR-Managed Lands, DNR Project Boundaries, DNR Office locations, and potentially other public land ownership and natural resources information.

See Appendix A for information about the DNR Land Use Team's plan to provide access to DNR data relevant to land use comprehensive planning.

1d. Identify any policies, content or technical standards your agency utilizes for the collection and use of land information or metadata.

The DNR's "Locational Data Standards", are posted on the DNR/EDM website: http://www.dnr.state.wi.us/org/at/et/geo/location/loc_stds.html

Other documents intended to help DNR programs collect locational data using Global Positioning Systems (GPS) technology can also be accessed on the EDM website. Individual DNR programs may develop their own procedures for data collection and use to meet their business needs.

The DNR's de facto standard for geographic metadata is the "Content Standards for Digital Geospatial Metadata" (CSDGM)of the U.S. Federal Geographic Data Committee; http://www.fgdc.gov/metadata/contstan.html. In cases where CSDGM metadata are not available from DNR custodial programs, available informal documentation accompanies requested data.

The DNR's Aquatic and Terrestrial Resources Inventory (ATRI) may also be a source of technical standards and metadata describing land information. The contact for more information about ATRI standards is:

Jim Woodford, Research Liaison
DNR Bureau of Integrated Science Services
Rhinelander, WI 54501
woodfje@dnr.state.wi.us, 715/365-8856

1e. Identify major land information that may relate to or depend upon other State Agency land information (from yours or another agency) for technical integration.

The DNR/EDM frequently shares requested land information with federal, state, and county or regional government agencies, ostensibly for purposes of technical integration. Commonly requested DNR land information include those data cited in Section II.B.1c.

Individual DNR programs may have technical relationships with other government agencies which involve integration of land information to meet programs' business needs. Information about these relationships may be obtained by contacting the responsible DNR program directly (for contact information, refer to the listing of DNR custodial data in Section II.B.1a, or to the DNR internet site: www.dnr.state.wi.us).

A major example involves the DNR Bureau of Drinking Water and Groundwater, which is the agency's lead program for the Wisconsin's Source Water Assessment Program (SWAP). The overall goal of SWAP is to gather and utilize meaningful information to assist source water protection efforts and the overall drinking water program in the state. Existing information from numerous state and federal programs (e.g. locations of significant potential sources of contamination) will be integrated with SWAP-collected data to produce coverages relevant to public water susceptibility to contamination. For more information, contact:

Jeff Helmuth, Source Water Protection Team Leader
Bureau of Drinking Water and Groundwater, DG/2
helmuj@dnr.state.wi.us, 608/266-5234

1f. Identify and describe land information from outside sources, for which the agency has a need and requires access to carry out day-to-day responsibilities, functions and statutory requirements. Identify any barriers or obstacles to accessing such data. This may include federal, state, regional, local, tribal or municipal data. Include a discussion of the agency's intended use and application for such data.

DNR/EDM seeks to obtain land information from sources outside the DNR which could help agency programs meet their business needs. However, EDM has no budget to pay for acquiring data from producing agencies, so our ability to obtain these data is dependent on datasharing or other inter-agency cooperative relationships. In many cases, EDM has been successful in building inter-agency datasharing relationships as a means of obtaining needed data. But an ongoing obstacle is a lack of funding to acquire the data from producing agencies which view the sale of land information as a revenue source. An additional obstacle is a staffing shortfall that hampers EDM's ability to explore and develop datasharing relationships with the data producers. Examples of land information needed by the DNR and produced by outside sources include:

- **Digital Orthophotos (DOPs)** – Over the past few years, the DNR/EDM has obtained DOP coverage for much of the state, which are used by several DNR programs to improve information about the location of facilities, regulated sites, and other features of interest. Cooperative agencies which share DOPs with the DNR include the USDA/NRCS (for USGS-produced DOPs) and certain county governments.
- **Elevation** – DNR/EDM is looking for opportunities to obtain improved Digital Elevation Models or Digital Terrain Model data from producing agencies, which DNR programs could use for floodplain modelling or other agency program needs.
- **Land Parcels** – Programs in the DNR Lands Division have expressed a need for more accurate and up-to-date delineations of land ownership, such as that provided by tax parcel data.
- **Soils** – Digital County Soils data are potentially of interest to DNR programs in the Lands Division and Forestry Division. Although digital county soils can be obtained from USDA/NRCS at no cost, the main obstacle in using these data is the need to re-format so as to be compatible with DNR standard operating environments.
- **Census Data** – TheDNR is able to obtain much of the US Census Bureau data needed by DNR programs from the Department of Admnistration's Office of Land Information Systems (DOA/OLIS). OLIS provides DNR/EDM with various administrative boundary and infrastructure information derived from U.S. Census Bureau data. OLIS converts the Census data from their raw form as published by the Census Bureau into a form compatible with DNR standard operating environments. Data obtained from OLIS are used for mapping and other land information applications throughout the DNR. DNR programs involved with planning also have a need for Census Bureau demographic data, which EDM hopes to obtain in a usable form from OLIS as those data become available.
- **Transportation Data** – DNR/EDM obtains land information about State Trunk Highways and Railroads from the Wisconsin Department of Transportation (WisDOT). DNR programs have an additional need for improved local roads information, which it is hoped will become available from WisDOT in the future.
- **Address Data** – Although the Centrus Geocoding software and data are in use and available, DNR programs could benefit from more detailed and better quality address range data to provide greater confidence in address geocoding to identify facilities and other sites.

2. Identify the software used to develop and provide access to geospatial metadata (e.g., ArcCatalog, Spatial Metadata Management Software (SMMS), U.S. Geological Survey-developed tools, …). State whether the software generates metadata consistent with the FGDC Content Standard for Digital Geospatial Metadata, adopted by WLIP.

Software used to develop and provide access to geospatial metadata varies within the DNR, but include: ArcView Metadata Collector extension developed by the National Oceanic and Atmospheric Administration; the metadata editor ("tkme") and metadata parser ("mp") developed by Peter Schwietzer of the US Geological Survey; ArcCatalog; Microsoft Word, and Notepad. An ORACLE-based metadata entry system for a subset of the FGDC metadata standard was developed for the Aquatic and Terrestrial Resources Inventory (ATRI) project. SMMS software has been used by a few staff.

DNR/EDM encourages DNR programs to develop, maintain and provide access to geospatial metadata in a consistent form (i.e., CGDSM-compliant) regardless of the tools used.

3. For any metadata or land information on the agency's web site(s), please provide the title, Internet URL's, which include the CSDGM abstract, and the purpose. For metadata not accessible via the agency's web site(s) or Internet, please provide a list of all major metadata and the access method that is or would be applied for outside-agency use.

Metadata can be accessed on the DNR/EDM website as it becomes available:
http://www.dnr.state.wi.us/org/at/et/geo/metadata/index.html

In many cases, metadata describing DNR program geospatial data is also available on the DNR website, on web pages maintained by the custodial DNR program. A large quantity of DNR metadata has also been entered into the Aquatic and Terrestrial Resources Inventory (ATRI), although that metadata is not currently accessible (refer to Section II.A.1.d for ATRI contact information).

4. Identify the agency's plans for future metadata collection and maintenance.

DNR/EDM will continue to promote metadata collection and consistency. EDM plans to use ArcCatalog more extensively in the future to develop, update and manage metadata. EDM also hopes to use the ArcIMS Metadata Server Extension in the future to provide broader access to agency geospatial metadata, resources permitting.

C. Technology Architecture

Address the agency's approach to GIS technology implementation and include a discussion of the agency's vision of future technology architecture, software purchases and upgrades. Include a discussion of Enterprise-standard GIS/LIS workstation/desktop software, and related software.

The DNR's GIS technology architecture provides the foundation that supports land information development and use throughout the agency. The Department's vision of technology architecture for GIS implementation provides for:

- Multi-tier levels of functionality and capability appropriate for staff needs.
- More web-based and distributed architecture.
- User-authentication capability, to grant levels of use and access permissions.
- Expanded ability to access geographic data and functions with a variety of interfaces, including GIS clients, web browsers and other lightweight clients.
- Acceptable performance serving large GIS data sets and digital map data to the standard desktop.
- Enterprise database serving and management to enable staff access to current data from remote locations.
- Adequate performance when linking GIS data with Oracle data tables from the standard desktop.
- Improved data management options which implement effective transactional update for geographic and related data.

Standard GIS/LIS workstation/desktop software.
The agency plans to migrate the desktop operating system from Windows NT to Windows 2000 or XP.

Professional desktop GIS have been ESRI products ArcInfo and ArcView. ArcInfo users have upgraded to ArcGIS 8. ArcView users will continue to use ArcView 3.2, and many will upgrade to ArcGis 8 over time. We have completed the migration of end-user GIS software from our UNIX environment to the Windows NT operating system.

ESRI spatial database engine (SDE) is the enterprise geographic data server, relying on ORACLE database and running on Digital Tru64UNIX. We plan to enhance and improve SDE functions and begin identifying the future platform for SDE. ESRI ArcStorm storage manager server will be phased out over the coming year.

Web mapping software
ESRI ArcIMS Internet map serving software is used for new web mapping application development. ArcIMS utilizes SDE for geographic vector data serving. ArcIMS clients have been the standard desktop web browser. We plan to research the utility of using the standard desktop GIS software as clients to the ArcIMS server. The ESRI MapObjects IMS software is used to continue to serve older applications, but is no longer an active development environment.

Address geocoding software
Centrus address geocoding software is used for address geocoding and address certification.

Image processing/remote sensing tool s
Some limited use of ERDAS Imagine software is applied to remote sensing image interpretation and conversion. OrthoMapper software (a product of Image Processing Software, Inc.) is used for soft-copy photogrammetry by GIS Services staff and the Wetlands interpretation program. Multi-Resolution Seamless Image Database (MrSID) image software is used for scanned airphoto mosaicing, compression, and serving.

GPS (global positioning systems) tools
DNR/EDM continues to promote the effective use and integration of field data collection, global positioning systems (GPS) and other devices into the technology infrastructure. Trimble Pathfinder GPS desktop software is used for post-processing and analysis. DnrGarmin is a software utility developed in-house for data transfer between desktops and Garmin GPS receivers. Information about GPS tools and technology can be accessed on the DNR/EDM website:
http://www.dnr.state.wi.us/org/at/et/geo/location/gps_info.html

Large-format plotting/other output capabilities tools
Hewlett-Packard large format roll-feed plotters and various color laser printers are in use.

Metadata-collection tools
An ORACLE-based metadata entry system for a subset of the CSDGM metadata standard was developed for the Aquatic and Terrestrial Resources Inventory (ATRI) project, but will probably receive limited use in the future. SMMS software has been used by a few staff. Our goal is to establish an integrated approach for consistent agency-wide development, management and presentation of geospatial metadata. DNR/EDM will be evaluating ESRI ArcCatalog metadata tools and the ArcIMS Metadata Server extension (when available) as a potential future solution.

D. Organizational Architecture

1. Identify the Agency's plans for GIS/LIS training and include a discussion of any specific GIS/LIS-related training activities you wish to see offered for State employees.

DNR staff had made use of the Wisconsin Department of Transportation (WisDOT) training facility in a cooperative manner with WisDOT. The recent closure of that facility has had a negative impact on GIS training opportunities for agency staff. Other GIS training-related issues and trends include:

- A need for more affordable GIS training
- A need for GIS instructors from Environmental Systems Research Institute (ESRI)
- Use of Wisconsin DNR land information as part of the training
- Requests from DNR staff for GIS training that is customized to meet their specific business needs
- Staff who do receive training often do not have an opportunity to use it in a timely manner to retain skills learned
- Staff are making increasing use of on-line or computer-based training

2. Describe any formal or informal land information sharing or development agreements your agency currently supports or is a party to (e.g., Memoranda of Understanding/Agreement, other cooperative agreements, consortia agreements, etc.). Include a description of potential partners and mutual projects of this nature, which your agency either plans to pursue or would be interested in pursuing.

Formal Data Sharing Agreements & Consortia:

- Memorandum of Agreement between the DNR, the Wisconsin Department of Transportation, and Wisconsin Power and Light: "Natural Resource Regulatory Permitting & Information"
- 1999 Memorandum of Agreement between the DNR and the Department of Administration "to ensure optimal accuracy of Geographic Information Systems (GIS) data between the agencies and to develop procedures for resolving errors in data".

- Agreements between the DNR and various Counties in which the DNR acknowledges restrictions that the Counties have placed upon their digital orthophotography or other data products. These restrictions generally limit the DNR to internal use of the County-produced data, and prohibit re-distribution of the data without permission from the County.
- WISCLAND (the Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data, a partnership of public and private organizations seeking to facilitate landscape GIS data development and analysis). Although the WISCLAND consortium has been largely inactive since completion of the statewide Land Cover data set several years ago, WISCLAND remains a potential mechanism for cooperative inter-agency GIS/LIS data development or improvement.

Cooperative & Collaborative Arrangements:
The DNR EDM and GIS Services Sections maintain informal datasharing arrangements with:

- Various federal agencies, including the USGS, USDA/NRCS, US EPA, US Park Service, and the US Fish & Wildlife Service;
- Several state agencies, including the Wisconsin Departments of: Administration; Transportation; Agriculture, Trade and Consumer Protection;
- Several programs and departments of the University of Wisconsin system, including the UW-Madison Department of Forestry; UW Land Information and Computer Graphics Facility; UW Environmental Remote Sensing Center (ERSC); UW-Milwaukee American Geographical Society Collection; Wisconsin Geological & Natural History Survey; Wisconsin Public Service Commission;
- The Wisconsin State Cartographer's Office;
- The Wisconsin Regional Planning Commissions.

The DNR is an active participant in interagency and intergovernmental datasharing and standards development efforts. Groups in which DNR participates and intends to continue to pursue GIS/LIS integration and cooperation include:

- Wisconsin Land Information Program: The DNR is an active participant in the activities of the Wisconsin Land Council, Wisconsin Land Information Board, and the Wisconsin Land Information Association.

- Wisconsin Land Information System (WLIS): The DNR has worked with DOA to advance the cause of WILIS, and will continue to do so as resources are available.

- State Agency GIS Managers: Participant until group disbanded in 1997.

- WISCLAND: The DNR is a co-founder, active participant, and supporter of WISCLAND (the Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data), a partnership of public and private organizations seeking to facilitate landscape GIS data development and analysis.

- USGS/FGDC: Participant in standards and framework data development for metadata and transportation data models, and geodetic, cadastral, and transportation framework data for the National Spatial Data Infrastructure (NSDI).

3. Identify any internal agency GIS/LIS-related groups.

- The DNR GIS User Group, sponsored by the DNR EDM and GIS Services Sections in cooperation with other DNR programs active in GIS/LIS, meets quarterly.
- DNR Regional GIS User Groups meet periodically.
- Regional Customer Forums, held initially in the Winter of 2002, feature demonstrations and discussion about GIS/LIS-related activities in the DNR Regions.
- The DNR Land Use Team provides access to information about DNR activities with land use implications.

4. Identify any other organizational needs you anticipate.

- For the DNR to continue to implement and integrate GIS/LIS technology successfully, the agency must be able to address staffing shortfalls. One approach would be to fill key vacant GIS/LIS positions which were "frozen" during FY2002.
- There is an ongoing need to align GIS/LIS and Information Technology budgets with agency business requirements; the information provided in the Land Information Plans should be used to re-deploy land information funds to accomplish this alignment across State Agencies.

E. Security Architecture

1. Provide any policy or statutory provisions related to privacy, cost recovery, liability, legal disclaimers, copyright or licensing related of land information, mapping, data distribution, usage, and the Internet. Address any open records laws issues that relate to the data distribution needs of the agency.

- The DNR complies with the Open Records Law when handling requests for data and applications, including those involving land information. Depending on the context, DNR uses various disclaimers to notify users of appropriate uses of and support for requested data and applications. The legislature has granted Open Records Law exemptions to certain DNR that manage environmentally sensitive information, such as the Natural Heritage Inventory of rare and endangered species, and the Wisconsin Welands Inventory. Under these exemptions, the custodial program may be allowed to restrict access to certain information, or to charge fees.

- The DNR adheres to all legal and other requirements for computer matching of personally identifiable information; Act 88 "opt out" related to facility contacts, recreational licenses, park vehicle admissions, and boat, ATV, and snowmobile registrations; and other applicable state and federal laws and rules designed to protect the privacy of individuals and the habitats of endangered species.

- The DNR employs standard database administration practices, through the use of virus-checking software, password-protected logins, and establishment of an Internet firewall, to establish secure systems as appropriate. For other security architecture solutions, particularly related to secure internet data access and user authentication, the agency is awaiting WI-MAP (Web Identification Management Architecture Project) recommendations.

- DNR/EDM includes a statement of legal information with all EDM distributions of DNR geographic data to requesters outside of the agency. The legal information statement was downloaded from the following DNR Website Legal Information web page: www.dnr.state.wi.us/org/legal/WebSiteLegalInformation.html

Providing Public Access to Comprehensive Planning Data

The Wisconsin Department of Natural Resouces (DNR) will be supplying access to metadata for land use comprehensive planning data through its land use website, http://www.dnr.state.wi.us/org/es/science/landuse/index.htm, under "Planning Data and Maps."

The Department's Land Use Team analyzed each of the 9 comprehensive planning elements, considering which natural resources-related data sets are necessary to accomplish the element goals. We considered factors such as importance of the resource, spatial extent of the resource, scale of the data set, and availability of the data sets. The team developed a list of the data sets that are useful for each element, and gave them either a 'high' or 'moderate' priority. This list is included as part of this Appendix to the agency's Land Information Plan ("A_Planning_Data_Matrix.xls"), and will shortly be available on the internet site indicated above.

The Department's plan to provide public access to DNR land information needed to support comprehensive planning consists of three stages:

Stage 1: When Stage 1 is complete, a user will be able to access the list of data sets. Each data set will have a link to a guidance document, which is a short paragraph or two explaining why and how that data set should be considered for that particular element. The guidance will contain a link to metadata on the data set. At a minimum, the metadata will provide the name of a person to contact for more specific access information. This stage will be complete by April 30, 2002.

Stage 2: When Stage 2 is complete, a user will be able to view these same data sets by using ArcIMS. The user will be able to produce maps containing various layers of data, but will not be able to manipulate the data, or add additional datasets to the map. This stage will be complete by July 30, 2002.

Stage 3: The Department will look into producing CDs including the relevant DNR comprehensive planning data sets. DNR geographic data could be shared on CD provided that the custodial DNR programs have not placed restrictions on distributing the data outside of the agency, and do not charge additional fees for data distribution. There is no deadline on this project, but work will begin after Stages 1 and 2 are complete.

This information was prepared on 3/27/02 by:
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Data Matrix for Comprehensive Planning: Updated 2/19/02						
Elements	**Data_name**	**Data Custodian**	**Format**	**Scale**	**Accessible**	**Comments**
H	American Indian Lands	Office of Land Information Services: gis.services@doa.state.wi.us (DOA)	GIS	100K	Yes	
H	Arsenic samples	DNR: Randall Clark (DG) (GRN System)	GIS	Mixed	Through DG Program: http://prodmtex00.dnr.state.wi.us/pls/inter1/grn$.startup	The GRN system can be used to pull out Arsenic Contamination Samples.
E, NR, LU, U	Brownfields (BRRTS)	DNR: Tom Fass (RR) / (Commerce)	GIS	24K	http://comgis1.commerce.state.wi.us/wiscomp/blis_start.htm	
NR	Confined Animal Feeding Operations (CAFO)	DNR: Ann Schachte (DG)	GIS	12K - 24K	Yes	
H, **LU**	County Forests	DNR: Mitch Moline (ET)	GIS	24K	Yes	
NR	Conservation Reserve Enhancement Program (CREP)	Dept. of Ag. Trade and Consumer Protection	GIS	24K	Unknown	
NR, U	Dams	DNR: Meg Galloway (WT)	GIS	24K	Yes	DNR Managed Dams
H, **NR, LU**, U	DNR Managed Lands	DNR: Jeff Walters (ET)	GIS	24K	Yes	Disclaimer must be accompanied with this dataset.
E, H, LU, NR, T, U	DNR Project Boundaries	DNR: Jeff Walters (ET)	GIS	24K	Yes	

Data Matrix for Comprehensive Planning

Elements	Data_name	Data Custodian	Format	Scale	Accessible	Comments
H	Drinking Water System	DNR: Margie Damgaard (DG)	Database	NA	Contact DNR staff before publishing anything	Inventory of the public water supply systems.
NR	Elevation	John Laedlein (ET)	GIS / Raster	30M DEM	Yes	
H, NR, T	Endangered & Threatened Spp. (Natural Heritage Inventory- NHI)	DNR/TNC: Julie Bleser (ER)	GIS	Varies	Restrictions/ Fee: http://www.dnr.state.wi.us/org/land/er/nhi/NHI_ims/onlinedb.htm	NHI On-line database for initial screen of endangered/threatened species.
H, LU, **T**	Environmental Corridors	NA	GIS	Mixed scales	Not Statewide	Some RPCs have done this, should think about creating statewide layer?
H, **LU**	Federal Lands	DNR: John Laedlein (ET)	GIS	100K	Yes	
E, H, LU, NR, T	Floodplains	DNR: John Coke (WT)	Scanned FEMA maps	2K	Yes	Accuracy of the FEMA maps is questionable.
E, **NR**	Forest Tax Law	DNR: Mitch Moline (ET)	GIS	24K	Yes	
LU, NR	Glacial Habitat Restoration project (GHRA)	DNR: Ron Gatti (SS)	GIS	24K	Yes	Eventually may become part of the DNR Project Boundary.
E, **H**	GIS Registry of Closed Remediation Sites	DNR: Tom Fass (RR)	GIS	24K	http://gomapout.dnr.state.wi.us/org/at/et/geo/gwur/index.htm	
H, U	Groundwater Use info High-cap wells	DNR: Bill Furbish (DG)	Township, Range, Section	Mixed	Through DG: http://intranet.	Some points are from GRN (Groundwater

Data Matrix for Comprehensive Planning

Elements	Data_name	Data Custodian	Format	Scale	Accessible	Comments
E, NR, **T, U**	Ice Age Trail, Existing	Ice Age Trail: Drew Hanson (LF)	GIS	24K	Yes	Data updated every six months to show newly built Trail
NR	Impaired waters, 303d	DNR: Jim Ruppel (WT)	GIS	24K	Yes	
H, NR, U	Karst Topography	Wisconsin Geologic and Natural History Survey				
NR	Lake Protection Districts/Lake Associations	UW-Extension	http://www.uwsp.edu/cnr/uwexlakes/organizations/default.asp		Yes	On-line document through UWExtension.
H, LU, NR	Land Legacy Sites	DNR: John Pohlman (LF)	GIS		Pending approval	Pending approval from NR Board
H, **U**	Landfills (opperating & abandoned)	DNR: Jack Connelly (WA)	GIS	12K - 24K	Yes	R&R/SWAP
H	LUST (Leaking Underground Storage Tanks) sites	DNR: AlexTurner (RR)	http://www.dnr.state.wi.us/org/aw/rr/cleanup/ust_lust.html	Township, Range, Section (TRS)	On-line	Commerce now regulates USTs. You can use BRRTS to find LUST sites in Wisconsin
H, **LU**	National Forests	DNR: John Laedlein (ET)	GIS	24K	Yes	
E, NR	Non-metallic resources	(WGNHS) or DNR: Tom Portle (WA)				
E, NR	Outstanding/Exceptional Resource Waters	DNR: Janel Pike (WT)	GIS	100K	Yes	Notification of contriversal situations must be made to WT.
NR, U	Point Pollution Sources	DNR: Kate Barrett (WT)	DB:SWAMP - GIS	Mixed scales	Not until approval/completion	Facility locations are no longer being updated. The focus is placed on water quality (outfalls, seepage cells, lagoon ponds).

Data Matrix for Comprehensive Planning

Elements	Data_name	Data Custodian	Format	Scale	Accessible	Comments
NR	Priority Watershed Projects	DNR: Ann Schachte (DG)	GIS	24K	Yes	The program is being re-vised. Finishing up with existing projects.
H, U	Sewer Service Area Plans	DNR: Lisa Helmuth (WT)	Document	NA	Not electronic, Lisa H. is working on doing that	Not consistent statewide, Lisa H. suggested doing a statewide layer?
LU, NR	Soils (STATSGO & SURGO)	State soil scientist (NRCS)	GIS	250K / 63K	Yes, STATSGO, Surgo not available Statewide	
H, NR, T, U	Surface Water	DNR: John Laedlein (ET)	GIS	24K	Yes	
NR	Superfund sites	Environmental Protection Agency			http://www.epa.gov/region5superfund/sfd_folk.htm	
NR	TNC datasets	The Nature Conservancy				contacted J. Wagner
LU, NR	Topography (DRGs)	DNR: John Laedlein (ET)	GIS / Raster	24K	Yes	Scanned USGS 7.5 minute Topographic Quadrangle Maps
E, U	Toxic Release Inventory	DNR: Tara Edblom (SS)	DB	NA	Yes	
E, H, NR, T, U	Trails	DNR: Bonnie Gruber (PR)	GIS	Mixed		Only useful at appropriate scales.
U	Transmission lines, Existing	WI Public Service Commission	GIS	Mixed	Yes	External requestors should contact the PSC directly for this information.

Data Matrix for Comprehensive Planning

Elements	Data_name	Data Custodian	Format	Scale	Accessible	Comments
H	Trout Streams	DNR: Bob Topel (FH) / Larry Clagget (FH)	2001 Trout Streams book	NA	http://www.dnr.state.wi.us/org/water/fhp/fish/faq/troutclass.htm.	
NR	Water Quality Assessment Data (305(b))	DNR: Lisa Helmuth (WT)	Access	NA	Through WT	was established to meet requirements for Clean Water Act Section 305b Water Quality Reporting to Congress. It contains
E, LU, **NR**, U	Wellhead protection plans	DNR: Amy Ihlenfeldt (DG) / Dave Lindorff (DG)	GIS being created	24K	Yes, when done. Estimated completion end of FY02.	Plans, designation of areas of protection of varing degrees
H, LU, **NR**, T	Wetlands	DNR: Calvin Lawrence (FH)	GIS	20K	Fee: http://www.dnr.state.wi.us/org/water/fhp/wetlands/invent.htm	Not edgematched
LU, NR, T, U	WISCLAND Land Cover	DNR: John Laedlein (ET)	GIS, raster	40K	Yes	

BEITA Project Proposal for FY02

Proposal author: Mike Bohn Proposal date: 3/2001
Sponsoring section(s): Enterprise Data Management
Section priority # M Bureau priority #

Contact person: Mike Bohn E-mail: bohnm@dnr.state.wi.us Phone (608) 264-8557

Description of project: **Land Information - Requirements Phase**

The goal of this project is to lay the groundwork over the next biennium for achieving broader, agency-wide participation in the state agency land information planning process. This project will promote opportunities for data sharing and partnership-building, and help DNR explore how Wisconsin Land Information Program (WLIP) and Wisconsin Land Council (WLC) activities can help support the Smart Growth and resource and facility management activities of its programs and customers. Project tasks include:

- Identify external stakeholders and internal DNR contacts for land information technology integration.
- Develop a strategy for broadening internal DNR participation in the state agency land information planning process and in preparing the agency's Integration Plan.
- Identify ways in which Land Information Program activities can facilitate the creation of public and private partnerships that benefit the agency, and ultimately, citizens.
- Identify relationships between data used by DNR programs and data identified by Land Information Program as Foundational Elements.
- Identify and improve opportunities for DNR programs to share data with other state agencies, county and local governments, and other members of the Wisconsin Land Information community.
- Facilitate and implement consensus regarding the proper role of data custodianship, and identify land information data sets for which the DNR should have custodial responsibilities.
- Inform DNR staff about the Land Information Program's role and the agency's Land Information Integration Plan.

Timetable:

Develop, implement process to broaden DNR involvement in WLIP	7/2001
Identify DNR data which correlate with WLIP Foundational Elements	10/2001
Achieve consensus on roles of DNR data custodians	12/2001
Prepare Integration Plan for 2003-2004	6/2002

Time estimate for FTE (in hours by section):

Enterprise Data Management	312 hours
GIS Analysis and Mapping	360 hours
Network Services	
IT Coordinators	????

Cost estimates:

LTE: hours	$
Contractor: 1400 hours @ $100	$140000
Chargeback 360 @ $32	$11520
Training:	$5000
Supplies/Services:	$10000
Capital/Equipment:	$
Total project:	**$156530**

Customer program(s) funding provided: _X_ No __Yes Amount: $

Customer program(s) supported:

Dependencies, identify uncertainties: e. g. technical (HW/SW), staff (skills, cooperation), resources (fiscal, other projects**)**

Barriers –

The risk factors facing this project are predominantly organizational rather than technical.

External factors that could influence the outcome of this project include new requirements or initiatives on the part of the Wisconsin Land Information Board (WLIB) or the Wisconsin Land Council (WLC) affecting DNR programs. Although broader DNR participation in WLIP activities is necessary, it also carries with it the risk of increased expectations and demands on agency land information resources. Another potential external factor for this project is budget proposal to merge the WLIB and WLC, and to modify the Land Information Program requirements and resources.

Estimated start date: July Estimated completion date: June

Is this an IT Strategic Plan project? _**X**_ Yes __ No

Does this project support the DNR Strategic Implementation Plan? _**X**_Yes __No
Activity code: **ETLI** Need new ACTV code? __ Yes _X_ No

Check the classification of this project as ‘lights on’:

____ Minimal (nothing added from FY 01)- explain impacts:

____ Maintenance (higher costs to maintain FY01 service levels)- explain impacts:

__X__ Enhanced (real growth in service from FY01)- explain impacts:
Over the past year there has been an increasing emphasis on inter-agency land information initiatives, particularly WILIS (the Wisconsin Land Information System) and WLC (the Wisconsin Land Council). This trend indicates a growing level of activity for the Land Information project over the next 2-3 years. State and federal agencies, counties, Regional Planning Commissions, and other partners will expect full DNR participation in the areas of land information technology, data sharing, and related policy development.

What are the consequences or impacts if this project is not approved?

- The business needs of DNR programs, current and potential partners, and customers will not be adequately described in the DNR Land Information Integration Plan.
- Lost opportunities to share data or build partnerships that facilitate data integration among users.
- Confusion about responsibility and custodianship for DNR data sets under the Land Information Program.

BEITA Project-based Budgeting Proposal

Section ETEN -08-FY03 Distributed GIS/DNRview Migration

General Information

Author Name: John Laedlein **Version Date: 2/7/02**

Project Lead: John Laedlein **Phone 608/264-8914 Email: laedlj@dnr.state.wi.us**

Section Priority #: of **Bureau Priority #: of**

Activity/Task Code: ETVS **___ Need New Activity Code**

Architecture(s): __Organizational __ Technical __ Data _X_Applications __ Security

Agency Business Need(s):

Ongoing Work? _x__ Yes ___ No

Supports: DNR Strategic Plan __x_Yes ___No IT Strategic Plan __x_Yes ___No

Communication Plan Needed? __ Yes _x_ No

Project Information

Descriptive Title: Distributed GIS/DNRview Migration

Project Description:

DNRview is a system of integrated components developed by the DNR Enterprise Data Management Section and GIS Services Section for accessing DNR geographic data and for building distributable ArcView-based applications. The existing DNRView components will not work with the current version of ArcView, version 8. The DNRview components need to be re-written, using a different application language, in order to work with Arcview 8.

The key components of the DNRview system are:

- The base DNRview extension to ArcView 3.2 that includes additional functionality in ArcView menus, tools and buttons for accessing, querying and manipulating DNR data sets. The extension supports mapping projects such as REGview and various other applications.
- The mapping files and the DNR geographic data sets ("DVGISLIB") organized in the DNRview GIS Library structure for use with REGview.
- The documentation, training and technical support provided by GEO staff for DNRview users.

In addition to the core DNRview extension and the REGview maps that accompany it, several mapping applications customized for specific DNR program needs have been developed. These

applications run in conjunction with the DNRview extension and utilize a second extension known as "DV_Map."

The primary focus of this PBB for FY03 is rebuild DNRview and DV_Map to be compatible with ArcView version 8 software. Additional resources are needed to develop this capability.

Start Date (mm/dd/yy): 07/01/02 **Completion Date (mm/dd/yy): 06/30/03**

Dependencies:*

Related PBB(s):
Data Sharing/access
Data Management
Data Development

Reviewed by:

Training Needs: **Training Cost:**

Skills Needed:
Programmer(s) proficient in the use of VBA (Visual Basic for Applications).

Project Service Level: (Examples of criteria at \\CENTRAL\et_admin\Coremem12202_.doc)

___ Maintain a basic IT Presence. This is the foundation for all other services. Without these, no other services can function or exist.

_**X**__ Provide IT Services to Meet Enterprisewide Business Needs. These are added enterprisewide services that meet agencywide business needs.

___ Provide IT Services to Meet Specific Program or Division Business Needs. This takes you to the next level of services that are program or division specific.

What are the consequences or impacts if this project is not approved?

There are a great number of DNR staff who use DNRView. It is the foundation for a number of successful business support implementations, including the customized Dvmap mapping tools, Waters Initiative field staff, and others. If this project is not approved, DNR staff depending on the DNRView GIS application, the DVMapping applications and DVGISLIB data distributed throughout the department will not be adequately supported, and will not be able to use DNRview or related applications using ArcView8.

Project milestones and performance measures:

For FY03, the emphasis for the Distributed GIS project will be migrating the DNRview system to ArcView8. The current DNRView application (DNRview version 2) is written in the Avenue

language for use with ArcView3.2; Avenue applications are not supported in ArcView 8. Tasks needed to accomplish this DNRview migration include:

- Evaluate the effort involved in implementing DNRview functions in ArcGIS and ArcView8
- Prioritize which DNRview2 functions should be incorporated into an ArcView8-compatible version in FY03.
- Perform the necessary VBA programming and other development tasks to implement the DNRview migration to ArcView8.

Additional milestones and performance measures for this project include:

- Continue distribution and maintenance of DNRview2 software.
- Maintain the DNRview intranet website
- Develop and maintain DNRview user documentation.
- Provide technical support to DNRview facilitators and DNRview users.
- Develop training materials for DNRview users.
- Coordinate with the Data Management project to assure that DNRview software development, documentation, technical support and training materials are compatible with the DNRview GIS Library (DVGISLIB).

BEITA Project-based Budgeting Proposal

Section ETEN05FY03 Web Mapping

General Information

Author Name: **Mike Bohn** **Version Date: 2/14/02**

Project Lead: **Jim Lacy** **Phone: 261-4393** **Email:**

Section Priority #: **of** **Bureau Priority #:** **of**

Activity/Task Code: **ETWI** **___ Need New Activity Code**

Architecture(s): __Organizational _X_ Technical _ _ Data _ _Applications _ _ Security

Agency Business Need(s):

Ongoing Work? _X__ Yes ___ No

Supports: DNR Strategic Plan __X_Yes ___No IT Strategic Plan _X__Yes ___No

Communication Plan Needed? __ Yes _x_ No

Project Information

Descriptive Title: Web Mapping

Project Description:

Continue to provide web mapping capabilities to support agency-wide and program business applications. Administer operation of web mapping servers, software, monitor performance of Web mapping applications, monitor connectivity to Intranet and Internet, ensure data access.

Monitor test and production servers and software performance. Coordinate server operating system selection and migration, coordinate upgrades of software versions for test and production. Manage software Licenses as needed. Monitor and implement security, coordinate activities with Security officer.

Monitor performance and connectivity to geographic data server SDE, Oracle database and client software. Research and implement new feature services, interfaces, access protocols as needed.

Provide coordination and operation, maintain web mapping application development framework. Continue developer guidance, documentation, provide review of applications. Provide guidance for best practices when linking to databases. Coordinate development of symbolization standards for data display and representation. Implement Data quality assurance tools.

Start Date (mm/dd/yy): **7/1/02** **Completion Date (mm/dd/yy): 6/30/03**

Dependencies:* Middle tier, iChain

Related PBB(s):
ETEN-03-FY03 (Data Management)
ETEN-04-FY03 (Data Sharing/Access)
ETEN-06-FY03 (SDE: Expanded Database)
ETEN-08-FY03 (Distributed GIS/DNRview Migration)
ETSV-01-FY03 (Applications and Database Development)
ETGI-02-FY03 (GIS Chargeback Production)
ETEN-02-FY03 (Data Development)

Reviewed by:

Training Needs: **Training Cost:**

Skills Needed:

Project Service Level: (Examples of criteria at \\CENTRAL\et_admin\Coremem12202_.doc)

_X__ Maintain a basic IT Presence. This is the foundation for all other services. Without these, no other services can function or exist.

___ Provide IT Services to Meet Enterprise-wide Business Needs. These are added enterprise-wide services that meet agency-wide business needs.

___ Provide IT Services to Meet Specific Program or Division Business Needs. This takes you to the next level of services that are program or division specific.

What are the consequences or impacts if this project is not approved?
Web-based GIS and Intranet/Internet map-based data display capabilities will not support agency and program business needs for efficient internal information sharing and distribution of information to the public.

Servers and software will not be supported, agency database and Internet connections will not be monitored and optimized. Application framework will not be supported or maintained.

Project milestones and performance measures:

Web mapping system performance will be reliable and meet business expectations. Servers, network, software, applications will communicate effectively. Web mapping applications, SDE and Oracle databases will communicate effectively.

Server operating systems will be migrated to new agency standard. New versions of software will be evaluated and implemented in test and production environments. New feature services, interfaces, and access protocols are implemented as needed.

The web mapping application development framework provides guidance, documentation, and review of applications. Agency web mapping applications are developed with appropriate symbols and appropriate, uniform look and feel.

BEITA Project-based Budgeting Proposal

Section ETEN02FY03 Data Development

General Information

Author Name: **Mike Bohn** **Version Date: 2/14/02**

Project Lead: **Brad Duncan** **Phone:** **Email:**

Section Priority #: **of** **Bureau Priority #:** **of**

Activity/Task Code: **ETDM** **___ Need New Activity Code**

Architecture(s): __Organizational __ Technical _X_ Data _x_Applications __ Security

Agency Business Need(s):

Ongoing Work? _X__ Yes ___ No

Supports: DNR Strategic Plan __x_Yes ___No IT Strategic Plan _x__Yes ___No

Communication Plan Needed? __ Yes _x_ No

Project Information

Descriptive Title: Data Development

Project Description:

This project provides continued support for data development activities and data development services to the agency. These can include geographic data processing and consulting, update of GIS Framework data layers, development of new databases, consulting to programs for database development, conversion and processing of Ortho airphotos, development and operation of a system to create orthophotos, consulting and guidance for appropriate use of GPS and field data collection tools, development of partnership relationships with external data providers.

The Enterprise Data Management Section (EDM) provides processing and consulting support to DNR programs for data conversions or additional processing of DNR geographic data in order to resolve data compatibility issues or to meet data reporting requirements. The EDM often coordinates these data conversion services for DNR staff, or helps identify cost-effective solutions. The *coordinate projection service* is used by programs across the agency, results in reliable data quality and increased confidence in use of geographic data by agency staff and partners.

Consulting to programs - facilitate and supports GIS and related data development for agency-wide and program-specific business needs.

GIS Framework data – update, maintenance, and consulting support.

Ortho Airphotos - obtain through partnership activities with Federal agencies or local governments, re-format and re-project to DNR standard coordinate system, use image processing and compression software to mosaic and compress the images into manageable file sizes. Structure, distribute and provide documentation and consulting. Ortho airphotos are used by programs across the agency, and have been found to be very effective. They have been, and will continue to be, increasingly incorporated into daily program business operations.

Orthophoto creation – maintain the infrastructure and capability to produce orthophotos. Using specilized photogrammetric software, process airphotos and elevation data to remove relief and photo distortions, georeference and mosaic the images, and produce orthophotos. These products will support specific program projects requiring accurate reference base maps, such as master planning and wetland mapping.

GPS and Field data collection – provide continued support for enterprise global positioning system (GPS) activities. These involve providing general guidance and specific technical support to DNR programs, developing software tools for downloading and projecting GPS data, and research of field GPS/GIS applications (e.g., ArcPad).

Partnership – share data effectively with Federal, State and local government partners.

Start Date (mm/dd/yy): **7/1/2002** **Completion Date (mm/dd/yy): 6/30/2003**

Dependencies:* **Staffing – fill vacant positions**

Related PBB(s): ETEN-04-FY03 (Data Sharing/Access)
ETEN-08-FY03 (Distributed GIS/DNRview Migration)
ETSV-01-FY03 (Applications and Database Development)
ETGI-02-FY03 (GIS Chargeback Production)

Reviewed by:

Training Needs: **Training Cost:**

Skills Needed:

Project Service Level: (Examples of criteria at \\CENTRAL\et_admin\Coremem12202_.doc)

___ Maintain a basic IT Presence. This is the foundation for all other services. Without these, no other services can function or exist.

_X__ Provide IT Services to Meet Enterprisewide Business Needs. These are added enterprisewide services that meet agencywide business needs.

__ _ Provide IT Services to Meet Specific Program or Division Business Needs. This takes you to the next level of services that are program or division specific.

What are the consequences or impacts if this project is not approved?
Data development services will not be provided to the agency.

Geographic data processing and consulting will not be provided, resulting in less efficient data use and management.

GIS Framework data layers will not be managed or updated.

New databases will not be developed, database development consulting to programs will not be provided.

Available Ortho airphotos will not be processed, converted to standard formats and distributed, depriving agency staff and partners of these valuable resources.

The agency will not have the benefits of a system to create orthophotos.

The extensive use of GPS equipment and field data collection tools will not be used appropriately, resulting in less accurate data and less confidence in data quality and decisions. Agency staff will waste time trying to figure everything out themselves.

Partnership relationships with external data providers will not be developed or maintained, resulting in data gaps and/or increased costs to the agency to obtain data.

Project milestones and performance measures:
Assistance is provided to DNR programs requesting geographic data conversion services in order to resolve data compatibility issues or to meet data reporting requirements.

Geographic data processing and consulting will be provided.

GIS Framework data layers will be managed and updated.

Complete ortho airphoto coverage for the entire state of Wisconsin will be available for use.

Guidance for a range of effective field data collection tools and GPS equipment will be developed, distributed and used by agency staff.

Effective data-sharing partnerships will be maintained and developed.

BEITA Project-based Budgeting Proposal

Section ETEN-03-FY03 Data Management

General Information

Author Name: Mike Bohn **Version Date:** 02/07/02

Project Lead: Mike Bohn **Phone:** 264-8557 **Email:** bohnm@dnr.state.wi.us

Section Priority #: of **Bureau Priority #: of**

Activity/Task Code: ETDM **___ Need New Activity Code**

Architecture(s): __Organizational __ Technical _X_ Data _ _Applications __ Security

Agency Business Need(s): Support and promote the consistent management and documentation of core SDE, ArcStorm and GIS library data. Facilitate integration of and access to these enterprise data throughout DNR.

Ongoing Work? __X_ Yes ___ No

Supports: DNR Strategic Plan __X_Yes ___No IT Strategic Plan __X_Yes ___No

Communication Plan Needed? __ Yes _X_ No

Project Information

Descriptive Title: Data Management

Project Description:

The DNR Enterprise Data Management Section (EDM) manages and provides access to enterprise geographic framework data that support a broad range of business needs throughout the agency. One of the core responsibilities of the EDM Section is the management of these DNR enterprise data holdings in database libraries that promote data integrity and provide DNR staff with reliable access to the data.

EDM uses Arc Spatial Database Engine (SDE) to manage and serve DNR's enterprise geographic data in Oracle database. SDE improves integration between spatial and tabular data, and serves those data to ArcView 3.2 and ArcGIS users, web mapping applications (ArcIMS), Oracle and other database applications. Core administration, management, and documentation activities for SDE data, data-related objects (e.g., tables, views, indexes), Oracle database structure (e.g., tablespaces, schemas, and roles), and system functionality (e.g., backups) are key components of this project. Development and implementation of SDE-related standards, policies, and best practices for these core management activities are also included.

Arc Storage Manager (ArcStorm) is used to provide concurrent multi-user editing of geographic framework data. This facility will be used and supported until similar capabilities are provided and implemented through new versions of SDE.

To make it easier for DNR staff using ArcView to access and use geographic data, EDM and the GIS Services Sections have developed a standardized data structure named DVGISLIB. DVGISLIB-structured data use a standard referencing system and file format, making the data easier to use, share and update. These data are maintained by EDM staff on the DNR computer network. As DVGISLIB data are updated they are provided on CD to each DNR Region for loading onto network file servers and local systems. DVGISLIB is used by DNRview and related ArcView-based applications, as well as by DNR web mapping applications accessing spatial data in SDE. One of the goals of this project for FY03 is to more closely integrate DVGISLIB and SDE to facilitate distribution of new or updated data to DNRview users throughout the agency.

Start Date (mm/dd/yy): 07/01/02 **Completion Date (mm/dd/yy):** 06/30/03

Dependencies:* **Recruit Vacant SDE Administrator Position**

Related PBB(s):
ETEN-02-FY03 (Data Development)
ETEN-04-FY03 (Data Sharing/Access)
ETEN-05-FY03 (Web Mapping)
ETEN-06-FY03 (SDE: Expanded Database)
ETEN-08-FY03 (Distributed GIS/DNRview Migration)
ETSV-01-FY03 (Applications and Database Development)
ETGI-02-FY03 (GIS Chargeback Production)

Reviewed by:

Training Needs: none **Training Cost:** $0

Skills Needed:

Project Service Level: (Examples of criteria at \\CENTRAL\et_admin\Coremem12202_.doc)

_X__ Maintain a basic IT Presence. This is the foundation for all other services. Without these, no other services can function or exist.

_X__ Provide IT Services to Meet Enterprisewide Business Needs. These are added enterprisewide services that meet agencywide business needs.

___ Provide IT Services to Meet Specific Program or Division Business Needs. This takes you to the next level of services that are program or division specific.

What are the consequences or impacts if this project is not approved?

Loss of core SDE functionality and support for web mapping applications. No SDE data or functionality available to desktop GIS, web-based, or Oracle applications. No ArcStorm transactional, multi-user editing capabilities for geographic data. Limited ability to support integration of spatial and non-spatial data. No updates or distributions of DVGISLIB data to DNRView users.

Project milestones and performance measures:

- Continued maintenance of core SDE data, data-related objects, Oracle database structure, and system functionality.
- Maintain, support and distribute DVGISLIB data for use with DNRview and related applications.
- Research and develop an automated process to use SDE databases to update DVGISLIB data store to ensure data synchronization and improve distribution of current data.
- Coordinate with the Distributed GIS/DNRview Migration project to assure that updates to the structure and contents of DVGISLIB are compatible with DNRview software development.
- Coordinate with the Web Mapping project to optimize SDE data serving to DNR web mapping applications.

BEITA Project-based Budgeting Proposal

Section ETEN-06-FY03 SDE Expanded Database

General Information

Author Name: Lisa Morrison **Version Date:** 02/07/02

Project Lead: Lisa Morrison **Phone:** 264-8911 **Email:** morrila@dnr.state.wi.us

Section Priority #: of **Bureau Priority #: of**

Activity/Task Code: ETSD **___ Need New Activity Code**

Architecture(s): __Organizational _X_ Technical _X_ Data __Applications __ Security

Agency Business Need(s): Investigate and develop best practices, policies, standards, and guidance for expanded GIS data server Spatial Database Engine (SDE) activities within DNR. Continue to support and promote the integration of enterprise spatial and non-spatial data and applications.

Ongoing Work? ___ Yes _X__ No

Supports: DNR Strategic Plan _X__Yes ___No IT Strategic Plan _X__Yes ___No

Communication Plan Needed? __ Yes _X_ No

Project Information

Descriptive Title: SDE: Expanded Database

Project Description:

The reliance on ArcSDE by GIS and Oracle users and application developers continues to increase. These activities have prompted the need to research, develop, and implement standards, policies, guidance, and best practices for several newly requested or anticipated SDE functions, including:

- SDE/Oracle administration issues (e.g., logon and password change/expiration issues, involvement in security issues especially as they relate to SDE)
- Creating non-spatial objects in SDE (e.g., views, indexes, tables)
- SDE environment dependencies (e.g., Oracle 9i database upgrades, operating systems changes such as Compaq TRU64 and Windows 2000/XP, etc)
- Understanding future ESRI technology directions
- Capability for “Direct Connections” via ArcGIS clients
- Data loading support for applications – building generic ArcObject tools for loading or appending data to a feature class
- Defining relationships (e.g., rules, domains) within and among feature classes
- Geodatabase modeling for new and updated databases
- Raster data issues (e.g., identify feasibility and resources needed to support raster data in SDE)

- SDE versioning and multi-user editing for dynamic segmentation to support surface water feature connectivity.

Start Date (mm/dd/yy): 07/01/02 **Completion Date (mm/dd/yy):** 06/30/03

Dependencies:* **Staffing – Recruit and fill Vacant SDE Administrator Position**

Related PBB(s):
ETEN-01-FY03 (Data Administration)
ETEN-02-FY03 (Data Development)
ETEN-03-FY03 (Data Management)
ETEN-04-FY03 (Data Sharing/Access)
ETEN-05-FY03 (Web Mapping)
ETSV-01-Fy03 Application and Database Development

Reviewed by:

Training Needs: **Training Cost:** $

Skills Needed:

Project Service Level: (Examples of criteria at \\CENTRAL\et_admin\Coremem12202_.doc**)**

_**X**__ Maintain a basic IT Presence. This is the foundation for all other services. Without these, no other services can function or exist.

_ _ Provide IT Services to Meet Enterprisewide Business Needs. These are added enterprisewide services that meet agencywide business needs.

___ Provide IT Services to Meet Specific Program or Division Business Needs. This takes you to the next level of services that are program or division specific.

What are the consequences or impacts if this project is not approved?

Difficulty expanding SDE capabilities to meet business needs within DNR. Inability to anticipate and effectively support upcoming changes to server operating systems and SDE server and client environments. Less optimized application development and data processing without "Direct Connection" and data loading procedures.

Project milestones and performance measures:

- Remain involved in Security Team activities as they related to SDE/Oracle ID issues
- Develop plan for SDE environment changes and support of various GIS and Oracle clients
- Develop standards, policies, best practices for creating non-spatial objects in SDE, using "Direct Connections", developing and using generic ArcObject tools, and modeling and defining relationships in the SDE geodatabase
- Identify and document the scope of raster data issues to be evaluated in SDE.